

MEANS FOR FIELD CONTROL IN PERMANENT  
MAGNET ELECTRIC MACHINES

Abstract

5 The present invention is a rotor apparatus in which the shape and magnitude of magnetic field distribution along the rotor circumference are controlled by means of current(s). The control current(s) can flow only during the phase in which a new magnetic state is created, or permanently. When the rotor magnetization is controlled by additional stator currents, the stator  
10 of the proposed machine draws during regular run only the load current. In one embodiment, the rotor of a synchronous machine has iron pole segment (1) and [two or more] a plurality of tangentially magnetized permanent magnets (2), (3) per pole with different radial dimensions. On the stator side a conventional AC winding carries stator currents during normal operation. During a short remagnetization phase, an additional component of stator current provides for change of  
15 magnetization direction in a portion of longer magnets.

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JUN 18 2001  
TECHNOLOGY CENTER 2300